REMARKS

Claims 1-21 are pending. By this amendment, Figure 4 is added, the specification is amended and claims 1 and 11 are amended. Reconsideration and allowance based upon the above amendments and following remarks are respectfully requested.

The Office Action objects to the drawings under 37 C.F.R. §1.83(a) for allegedly not showing every feature of the invention specified in the claims. Specifically, the Office Action objects that none of the Figures illustrates the single winding on the tooth of the stator as recited in claim 1. In response, filed concurrently herewith is a Request for Examiner's Approval of Drawing Changes which requests that a new Figure 4 be added to the application. The new Figure 4 illustrates the stator wherein each tooth has a single winding. To accommodate the addition of this figure, the specification has been amended to refer to and include a description of Figure 4. Applicants respectfully submit that no new matter has been introduced by the submission of Figure 4 and the added description.

In view of the foregoing, approval of the drawing change and withdrawal of the objection to the drawings are respectfully requested.

The Office Action rejects claims 1-21 under 35 U.S.C. § 112, second paragraph. Particularly, the Office Action indicates that the recitation of "electrical relative to electricity received by a second" is not clear. In response, claims 1 and 11 have been amended to clarify the meaning of the claim language. Support for the amendments can be found on at least page 2, lines 27-37 and page 3, lines 34-37.

Also, the Office Action rejects claims 1-3, 8-12 and 17-21 under 35 U.S.C. §102(b) as being anticipated by Kuo et al. (U.S. Patent No. 3,809,990) and claims 4-7 and 13-16

under 35 U.S.C. §103(a) as being unpatentable over Kuo et al. in view of Sakai et al. (U.S. Patent No. 5,808,392). These rejections are respectfully traversed.

In embodiments of the present invention an electrical induction machine is disclosed that utilizes multiple stator sections. The stator sections are located in different positions as seen from an axial plane. Electrical supplies associated with the stator sections are mutually phase shifted 180° electrical. The use of stator sections in the particular arrangement above has substantially the same effect as a distributed winding. The higher order harmonics are largely canceled while keeping the benefits of single tooth windings. The stator sections are mutually and physically phase shifted by an angle of 360°/n ± an angle related to skew. This is based on the fact that every stator section initially is identically arranged and positioned. Thus, before a phase shift of the electrical supplies, a tooth of one stator section is offset from a tooth having the same electric configuration of another stator section by 360°/n ± an angle related to skew. For example, if there is two stator sections, one of them is rotated 180° ± an angle related to skew.

Kuo fails to anticipate either of claims 1 or 11 because Kuo fails to disclose each and every elements recited in these claims. In Kuo there is disclosed an electric motor in which a stator section is designed to step the motor by 3.75° steps. See column 3, lines 24-50. The stator poles have at their ends five equally spaced teeth. Each of these teeth cooperate with extending ears from the rotor section. See column 2, lines 1-34. Nowhere in Kuo is there disclosed or even suggested a stator and rotor configuration as recited in the claims of the present invention. Specifically, Kuo does not disclose wherein the stator sections are mutually and physically phase shifted by substantially 360°/n electrical ± an

angle related to skew and wherein electrical supplies of every tooth of a first set of n/2 of the stator sections is shifted 180° electrical relative to electrical supplies of every tooth of a second set n/2 of the stator sections, as recited in claims 1 and 11.

Although the same basic principals of physics are utilized in the design of the stator and rotor of Kuo as with the embodiments of the present invention, the detailed design of the stator and rotor sections cause them to behave differently. The embodiments of the present invention, which are not disclosed or suggested in Kuo, allow the motor of the present invention to benefit from the use of a single tooth geometry and at the same time reduce dips and torque speed characteristics and rotor loss.

In contrast, the different design represented by Kuo is specifically designed so that the motor can operate either in a stepping mode or a continuous mode and when in the stepping mode to move in steps of 3.75°. Thus, the electric motor disclosed in Kuo provides a very different design and different performance from that of the embodiments of the present invention. Accordingly, withdrawal of the rejection under U.S.C. §102(b), is respectfully requested.

Furthermore, the permanent magnet rotating machine disclosed in Sakai does not make up for the deficiencies of Kuo. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

In view of the foregoing remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place this application in condition for allowance, the Examiner is invited to contact Applicants undersigned representative at the telephone number listed below.

Respectfully submitted,

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Attachment to Amendment dated January 8, 2002

Marked-up Specification

Page 3, Paragraph Beginning at Line 34

Assembling each of the stator sections 2 and 3 from the separate units 8 and 9, respectively, permits an easy winding of each unit of the stator 1. FIG. 4 illustrates the stator 1 with each tooth 6 of the stator 1 having a single winding 12.

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Marked-up Claims 1 and 11

1. (Amended) A stator for an electrical induction machine, comprising an even number n of stator sections (2, 3) at different axial positions, each section having a plurality of circumferentially separated, radially extending teeth (6, 7) and each tooth having a single winding,

wherein the stator sections are mutually and physically phase shifted by substantially 360°/n electrical ± an angle related to skew,

[and wherein each of the stator sections is arranged to receive electricity from an electrical supply such that a first set of n/2 of the stator sections will receive electricity that is shifted by 180° electrical relative to electricity received by a second set of n/2 of the stator sections] and wherein electrical supplies of every tooth of a first set of n/2 of the stator sections is shifted 180° electrical relative to electrical supplies of every tooth of a second set of n/2 of the stator sections.

11. (Amended) An electrical induction machine having a rotor and a stator, wherein the stator comprises an even number n of stator sections (2, 3) at different axial positions, each section having a plurality of circumferentially separated, radially extending teeth (6, 7) and each tooth having a single winding, wherein the stator sections are mutually and physically phase shifted by substantially 360°/n electrical ± an angle related to skew, [and wherein each of the stator sections is arranged to receive electricity from an electrical supply such that a first set of n/2 of the stator sections have their electrical

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Marked-up Claims 1 and 11

supplies shifted by 180° electrical relative to electricity received by a second set of n/2 of the stator sections] and wherein electrical supplies of every tooth of a first set of n/2 of the stator sections is shifted 180° electrical relative to electrical supplies of every tooth of a second set of n/2 of the stator sections.